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Identification with social groups is associated with mental health in adolescents:

Evidence from a Scottish community sample

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Abstract

The promotion and maintenance of mental health is an increasingly important societal issue. Previous research has shown that identification with social groups is positively associated with adult mental wellbeing, with multiple group identifications being particularly beneficial. The aim of the current study was to investigate whether the same is true for adolescents. 1111 Scottish secondary school students aged 13-17 completed a questionnaire investigating mental health symptoms and the extent of their identification with their family, school, and friendship groups. Higher identification with each group predicted better mental health. There was also an additive effect of group identification, with the odds of reporting psychiatric disturbance decreasing for every additional group with which participants identified strongly. These effects held even when age, gender, and group contact were controlled for. Our findings have implications for the prevention and treatment of mental problems, offering an alternative to traditional ways of viewing mental illness in adolescence and beyond.

Keywords: social identity, groups, mental health, social determinants of health.

1. Introduction

Researchers from numerous disciplines agree that membership in social groups (e.g., family, social club, local community, tribe) is a core feature of human existence (Tuomela, 2007; Tomasello, 2014). Group membership typically involves some degree of engagement in group related activities and interaction with in-group members. However, one may also develop feelings of belonging, affiliation and connectedness to a group, coupled with a sense of commonality with fellow group members (Sani et al., 2014). Researchers adopting a *social identity* approach to group processes (Turner, et al., 1987) define these positive feelings and cognitions about an in-group as *group identification*. Group identification is distinct from merely being part of a group – it refers to the subjective aspects of group membership, including the sense of identity and self-definition provided by feeling subjectively attached to a group (e.g., Jetten et al., 2012). It is therefore important to make this distinction between contact with/connectedness to groups, and a sense of identification with them.

1.1. Group Identification and Mental Health

The social identity perspective has helped to highlight the important effects that group identification can have on individuals' behaviour and mental processes, either among adults (e.g., Haslam, 2004) or children and adolescents (Bennett and Sani, 2008a and b). In particular, researchers have demonstrated that we tend to help, like, and cooperate with people who are members of groups with which we identify. We are also likely to receive such benefits from other group members in return (e.g., Turner et al., 1987; Haslam et al., 2004; Levine and Thompson, 2004; Levine et al., 2005; Platow et al., 2007).

Importantly, the various benefits of group identification also extend to the domain of mental health. For instance, researchers have demonstrated that greater identification with the family (Sani et al., 2010), the work group (Wegge et al., 2006; Haslam et al., 2009; Sani et al., 2012), and the support group (Wakefield et al., 2013) predict higher levels of psychological wellbeing and lower levels of self-reported psychiatric symptoms (particularly depression, anxiety, and stress). Moreover, the relationship between group identification and mental health appears to be highly consistent: systematically reviewing thirteen such studies, Cruwys and colleagues found the typical Pearson's correlation coefficient between group identification and self-reported depression to approximate -0.30 (Cruwys et al., 2014).

1.2. Group Identification and Adolescent Mental Health

While such studies have emphasized the important effects that group identification can have on the mental health of adult populations, very few social identity researchers have considered the potential impact of group identification on the mental health of adolescents. This is a significant oversight, since 75% of mental disorders emerge before the age of 25, and many argue that the mental health of young people is worsening (McGorry, 2013). The presentation of mental health problems in adolescence increases the risk of mental ill-health in adulthood (Birchwood and Singh, 2013); a fact that has prompted calls for adolescent treatment plans to be put in place, and for preventative action to be taken earlier in the life-course of potentially-vulnerable individuals (Wang et al., 2007; Sawyer et al., 2012). These calls are supported by research indicating that early treatment can reduce the social consequences of mental illness (Kessler et al., 1997; Kessler et al., 1998), decrease comorbidity with more complex conditions (Kessler and Price, 1993), lessen suicidality (Meltzer et al., 2003), and reduce 'neural kindling', which can cause untreated disorders to worsen (Post and Weiss, 1998).

One of the few social identity-based papers to address the important issue of adolescent mental health is that by Bizumic et al. (2009). The authors found that greater school identification was associated with lower levels of depression, more positive affect, and less destructive behaviour in a sample of Australian high school pupils. However, this study neglects an important fact: that school pupils can identify with multiple groups, not just their school.

1.3. Multiple Group Identifications and Mental Health

One of the central tenets of social identity theory is that we are all members of multiple social groups, even though we are unlikely to identify with all of these groups (Tajfel and Turner, 1979). The potential health benefits of multiple group memberships have started to receive attention in the social identity literature (e.g., Jones and Jetten, 2011), but, more importantly, so have the potential health benefits of identifying simultaneously with multiple social groups. For instance, in their study assessing well-being after joining university, Iyer et al. (2009) concluded that multiple group identifications can be particularly beneficial for wellbeing, because being a member of a group with which one has a sense of belonging can provide individuals with knowledge and opportunities (Bourdieu, 1979/1984) which, in turn, can provide material and psychological resources. Individuals who identify with multiple groups therefore have more resources and support available to them than those with fewer group identifications (e.g. Haslam et al, 2005; Iyer et al., 2009).

However, to our knowledge, there has been no research conducted in order to investigate the effect of multiple group identifications on the mental health of adolescents. We consider this a significant oversight: to help young people achieve good mental health as they move into adulthood, it is important that they feel safe and

supported in multiple group contexts, including the family, the school, and peer/friendship groups (Viner et al., 2012).

1.4. Aims and Hypotheses

With these issues in mind, our aim is to investigate the relative impact of each of these groups (family, school, and friends) on adolescent mental wellbeing. Based on Bizumic et al.'s (2009) findings regarding adolescent identification with a single group (as well the findings of studies regarding adult identification with single groups, e.g., Sani et al., 2009; Rosenthal et al., 2014), we suggest that identification with each of the three groups under study will predict better adolescent mental health (Hypothesis 1). In line with Iyer et al.'s (2009) suggestion, we further hypothesize that there will be a cumulative effect of group identifications, with multiple group identifications decreasing mental health symptoms (Hypothesis 2).

2. Methods

2.1. Participants and Procedure

Our study is based on Wave 1 of a 2-wave longitudinal research project. The Wave 1 sample included 1111 pupils (553 males, 553 females, Mage = 15.07 years, SD = 0.97, range: 13-17 years) from four Scottish public (non-fee-paying) secondary (high) schools. Schools were chosen based on their willingness and ability to participate fully in both waves.

Each school obtained parental permission for all pupils to participate in the study. Pupils also gave their personal informed consent before participating, and were reminded of their right to withdraw at any time. Only one individual chose not to participate. Participants completed a questionnaire in class time under exam conditions, either in assembly or in class. The questionnaire was administered either by the researcher or by class teachers. In cases where the researcher was not present, the teachers administering

the questionnaire were fully briefed on ethical and procedural considerations. In order to encourage honest responses, participants completed the questionnaire anonymously (although codes were used to allow the linking of Wave 1 and Wave 2 data).

2.2. Questionnaire Measures

2.2.1. Group Identification

Participants' identification with three distinct social groups was measured: the family, the school, and a friendship group. Concerning 'family', participants were instructed to consider "your immediate family or the people you live with most of the time, for example, your parents, carers, step-parents, or other family members who live with you in your house". With regards to 'school', participants were asked to think about it in terms of "an institution with its history, values and beliefs". Finally, concerning the group of 'friends', participants were asked to think about "the group of friends that you spend most time with or your 'best' friends".

Group identification was assessed with the widely used four-item global scale devised by Doosje et al. (1995). All items (e.g., "I feel strong ties with members of [group]") were rated using a 1 ('I strongly disagree') to 7 ('I strongly agree') scale, and participants completed the scale with reference to the family (Cronbach's $\alpha = 0.92$), the school (Cronbach's $\alpha = 0.89$), and a friendship group (Cronbach's $\alpha = 0.91$).

We then created three binary variables to allow us to sum the number of strong identifications students had (for further examples of this method see Sani et al., 2014; Sani et al., under review). One variable was created for each group identification measure (i.e., family, school, and friendship group). We did this by calculating each participant's average identification score for each of the three groups. If a participant's average score was 5 or less for a particular group, they received '0' for that binary variable (indicating the participant did not identify strongly with that particular group),

while if their average score was 6 or 7 they received '1' for that binary variable (indicating the participant identified highly with that particular group). We then summed the three binary variables to create a variable indicating each participant's number of high group identifications. This variable ranges from 0 (indicating the participant did not identify highly with any of the three groups) to 3 (indicating the participant identified highly with all three groups).

2.2.2. Mental Health

We assessed mental health with the 12-item version of the General Health Questionnaire (GHQ-12; Goldberg, 1972). This is a well-validated and extensively-used screening instrument designed for the detection of mild psychiatric disturbance in both clinical and non-clinical populations. It discriminates well between cases and non-cases of psychiatric disorders (Cano et al., 2001). Although designed for adults, the scale has been used successfully with adolescents (Baksheev et al., 2011; Goldberg and Williams, 1988). Each item assesses the frequency with which the participant has experienced a particular symptom over the past month (e.g., "Feeling unhappy and depressed"), using a scale ranging from 1 ('never') to 4 ('all the time').

Although there is debate over the optimal method of scoring, the instrument's creator recommends bimodal scoring (0-0-1-1) over Likert-scaled scoring (0-1-2-3) (Goldberg and Williams, 1988). A binary variable was therefore created, where responses of 1 and 2 were assigned scores of '0' (indicating the absence of a symptom), and responses of 3 and 4 were assigned scores of '1' (indicating the presence of a symptom). Each participant's 12 binary scores were then summed to create a GHQ-12 score, which could range between 0 and 12, with higher values indicating poorer mental health (Cronbach's $\alpha = 0.89$). Goldberg et al. (1998) suggested that the optimal cut-off threshold for the GHQ-12 should be between 3 and 4 (with a score of 3 indicating the

absence of a mental disorder, and a score of 4 indicating the presence of a mental disorder). Moreover, Hardy et al. (1999) claimed that this threshold gives the best conservative estimate of minor psychiatric morbidity. With this in mind, we created a binary variable called ‘psychiatric disturbance’, where participants with a GHQ-12 score of 3 or less received ‘0’ (lack of disturbance), and participants with a GHQ-12 score of 4 or more received ‘1’ (presence of disturbance).

2.2.3. Covariates

2.2.3.1. Demographic variables. Participants indicated their gender and age.

2.2.3.2. Group contact. For each of the three social groups considered (family, school, and friends), we asked two questions assessing the extent of contact participants had with other ingroup members: “How many members of your family/school/group of friends do you talk to (face to face) on a normal day?”, and “How many members of your family/school/group of friends do you talk to on the phone, by text or online (including email, Facebook, chat-rooms, discussion boards etc.) on a normal day?”. This measure was adapted from an instrument devised by Sani et al. (2012).

Using the same method as previous studies (e.g. Sani et al., 2014; Sani et al., under review), for each of the three groups we transformed a participant’s responses to the two contact questions into Z-scores, and then summed these two Z-scores into an overall measure of contact. The group was considered to be either not contact-intensive for the participant, when the participant scored below 0 (less than average contact), or contact-intensive for the participants, when the participant scored 0 or more (average/higher than average contact). At this point, we summed these three binary variables to create a variable indicating one’s number of contact-intensive groups. This variable ranges from 0 (indicating the participant did not have any contact-intensive group) to 3 (indicating that all three groups were contact-intensive for the participant).

3. Results

3.1. Incidence of Psychiatric Disturbance

32.80% of our sample (45.40% of females and 20.30% of males) met the criterion for presence of psychiatric disturbance. This is a great deal higher than GHQ-12 rates reported in the most recent Scottish Health Survey (Scottish Government, 2012) which reported that in the period 2008-2011, only 9% of children scored above the clinical cut-off (11% of females and 7% of males).

3.2. Frequencies, Descriptives, Reliabilities, and Inter-correlations

First, we calculated the proportion of our sample scoring above the clinical cut-off on the GHQ-12. We found that 32.80% of the overall sample (45.40% of females and 20.30% of males) was suffering from psychiatric disturbance.

Next, we investigated the relationships between each of the continuous variables. Table 1 shows the means, standard deviations, and reliabilities (where applicable) for all the continuous variables, as well as the inter-correlations among all the variables. The three group identification measures and the GHQ-12 variable all had good reliability, with Cronbach alphas ranging from 0.89 to 0.92, and the two Z-scored group contact items correlated significantly for each of the three groups ($ps < 0.01$). All three of the group identification measures correlated positively with each other ($ps < 0.001$). Moreover, all three correlated negatively with GHQ-12 ($ps < 0.001$), indicating that higher group identification was associated with better mental health. Family identification correlated positively with family contact ($p = 0.001$) and negatively with friend contact ($p = 0.030$), while school identification correlated negatively with friend contact ($p = 0.004$). Friend identification correlated positively with school contact ($p = 0.026$) and negatively with friend contact ($p = 0.020$). There was also a negative

correlation between age and family contact ($p = 0.037$). Finally, family and school contact correlated positively ($p < 0.001$), as did school and friend contact ($p = 0.003$).

(TABLE 1)

3.3. Hierarchical Multiple Regression Analysis

Hierarchical multiple regression analysis was then used to assess the ability of the three independent constructs (family identification, school identification, and friend identification) to predict GHQ-12 (thereby testing Hypothesis 1: that identification with each of the three groups under study will predict better adolescent mental health).

3.3.1. Assumptions

We first checked whether the data met the various assumptions required for linear regression. Tolerance values ranged from 0.68 to 0.99, while the highest Variance Inflation Factor value was 1.48, clearly indicating a lack of multicollinearity. We also investigated outliers. 6.37% of cases had a standardized residual above 2.00, which is just above the 5% that would be expected by chance. On the basis of these results, we proceeded with the linear regression.

3.3.2. Analysis

We entered the control variables (gender, age, family contact, school contact, and friend contact) at Step 1, while family identification, school identification, and friend identification were entered at Step 2. This enables an examination of the unique contribution of each variable in predicting GHQ-12, as well as an assessment of the variance in GHQ-12 that family/school/friend identification may explain in addition to the variance explained by gender, age and family/school/friend contact (see Table 2). Supporting Hypothesis 1, family identification, school identification, and friend identification at Step 2 were all significant predictors of GHQ-12 (β s were -0.20, -0.25, and -0.09 respectively; $ps < 0.01$). Among the control variables, only gender was a

significant predictor ($\beta = -0.25$; $p < 0.001$). Taken together, family, school, and friend identification explained a significant amount of variance in addition to the variance explained by gender, age, and contact on GHQ-12 ($\Delta R^2 = 0.18$, $p < 0.001$).

(TABLE 2)

3.4. Cross Tabular Analyses

We then investigated the frequencies of ‘psychiatric disturbance’ (no/yes) as a function of number of high group identifications (0-3). Table 3 reports these frequencies, together with the chi-square value and statistical significance. This analysis shows that as the number of high group identifications increases, the number of participants exhibiting psychiatric disturbance decreases, following a clear gradient. Specifically, 71.10% of respondents without any high group identifications exhibited psychiatric disturbance, compared to 60.70%, 35.80% and 17.00% for respondents with one, two, and three high group identifications respectively. The association between number of high group identifications and psychiatric disturbance was statistically significant, $\chi^2(3, N = 1046) = 159.96$, $p < 0.001$.

(TABLE 3)

3.5. Logistic Regression Analysis

Finally, we performed a direct binary logistic regression analysis in order to investigate the effects of four predictors - number of high group identifications, number of contact-intensive groups, gender, and age – on ‘psychiatric disturbance’. This analysis tested Hypothesis 2: that there will be a cumulative effect of high group identifications, with multiple high group identifications decreasing mental health symptoms.

3.5.1. Assumptions

We first checked whether the data met the various assumptions required for logistic regression. Tolerance values ranged through the 0.90s, while the highest Variance Inflation Factor value was 1.04, clearly indicating a lack of multicollinearity. We also investigated outliers. The number of cases with a studentized residual above 2.00 did not reach a value that would cause concern. On the basis of these results, we proceeded with the logistic regression analysis. It should be noted that although the data-file contained 1111 participants, only individuals who had data for all of the variables featured in the logistic regression ($n = 906$) were included in the analysis.

3.5.2. Analysis

The full model containing all predictors was statistically significant, $\chi^2(4, N = 906) = 190.85, p < 0.001$ (see Table 4), indicating that the model was able to distinguish between respondents who did and did not report mental health symptoms. The strongest predictor was gender, with females having larger odds of reporting mental health symptoms than males, $OR = 0.30$. Supporting Hypothesis 2, the results also showed that number of high group identifications was a significant predictor: the odds of participants reporting mental health symptoms decreased with each additional high group identification, $OR = 0.41$. Neither number of high contact groups nor age had a significant effect on the odds of participants reporting mental health symptoms.

(TABLE 4)

4. Discussion

In relation to our predictions, the results support both our hypotheses. Concerning Hypothesis 1, we found that identification with each of the three groups (family, school, and friends) predicted participants' GHQ-12 score, such that the more strongly the participants identified with each group, the fewer mental health symptoms they

experienced. Identification with each group uniquely predicted mental wellbeing, with school and family identification being the strongest of the three predictors, and friend identification having a weaker (but still significant) effect. Regarding Hypothesis 2, we found an additive effect of high group identification, with the odds of participants exhibiting psychiatric disturbance decreasing for every additional group with which they identified.

4.1. Identification with Individual Groups Predicts Mental Health

Our findings regarding Hypothesis 1 support previous research showing the mental health benefits of identifying with a single group, both in the context of adults (e.g. Sani et al., 2009; Jetten et al., 2012; Rosenthal et al., 2014) and in the context of adolescents (Bizumic et al. 2009). Indeed, supporting Bizumic et al.'s results regarding the positive effects on adolescent mental health that identification with school can impart, we found that the strongest predictor of positive mental health outcomes (excluding gender) was school identification. This finding may relate to the fact that school is generally a stable and reliable social group for adolescents. Indeed, there is currently a strong curricular emphasis on Scottish pupils' social and emotional wellbeing (Scottish Executive, 2004), with schools aiming to provide a supportive atmosphere in which adolescents can discuss their problems with people they trust.

Family identification was almost as strong a predictor of positive mental health outcomes as school identification. This result is consistent with Sani et al.'s (2010) findings regarding the important role that family identification plays in the mental health of adults. Clearly, in most cases, family is the primary social group for adolescents, and it would therefore be the first point of contact should they need help and support. This means that identifying (or not identifying) with one's family in adolescence is likely to have important implications for mental health.

We found friend identification to also be a statistically significant predictor of positive mental health outcomes, but not as strongly as school or family identification. This may be because of the specific properties of the friendship group. In particular, its generally transient nature could lead young people to perceive it as less reliable and consistent than other groups. Nonetheless, friend identification was still a significant predictor of positive mental health outcomes, so, like school and family, it is clearly an important social group for adolescents.

4.2. High Identification with Multiple Groups Predicts Mental Health

Our findings regarding Hypothesis 2 support and extend Iyer et al.'s (2009) work with university students, by indicating that identification with multiple social groups also has an important benefit for adolescents' mental health. For each additional group with which the participant identified highly, the odds of suffering from psychiatric disturbance declined. Consistent with Iyer et al.'s interpretation, we believe that our results are due to the various advantages of possessing multiple group identifications. Each additional group identification increases one's overall sense of belonging, meaning and purpose, as well as the potential for more positive and nurturing relationships. Having a variety of groups with which one identifies also means that one is psychologically connected to a variety of people who can (and who are likely to) offer different types of social support when one is in need (e.g., emotional, instrumental, financial, etc.). This means that the likelihood of receiving appropriate help during a time of crisis is increased. Possessing multiple group identifications also means that losing a connection with one group is unlikely to be too detrimental to one's mental health, as the other identifications act as a 'buffer' during times of adversity and transition (Iyer et al., 2009).

4.3. Covariates

It is important to note that the relationship between identification with each group and GHQ-12 scores (Hypothesis 1) and the relationship between number of group identifications and presence of mental health symptoms (Hypothesis 2) were both present even after controlling for age, gender, and group contact. Gender is a particularly important variable in this context, since it is well-established that females are more likely to report mental ill-health than males (World Health Organization, 2002). Indeed, this is exactly what we found in the present study. The fact that identification with each group and the number of high group identifications both remained significant predictors even after controlling for gender therefore highlights the important (and unique) role that group identification plays in predicting mental health.

It is also worth noting that neither contact with each group (Hypothesis 1) nor number of high contact groups (Hypothesis 2) were significant predictors of mental health. Supporting work by Sani et al. (2012), this finding highlights the conceptual difference between group identification (one's subjective sense of belonging to a group and feeling of commonality with ingroup members) and group contact (mere interaction with ingroup members and participation into group activities). The two concepts are not inevitably related, and mere contact with group members appears to do little to benefit mental health: one must identify with the group in question in order to experience positive effects.

4.4. General Prevalence Rates

It is worth noting the prevalence of mental disorders amongst our participants. 32.80% of our sample (45.40% of females and 20.30% of males) met the criterion for presence of psychiatric disturbance, which is considerably higher than GHQ-12 rates

reported in the most recent Scottish Health Survey (Scottish Government, 2012). The Scottish Health Survey reported that in the period 2008-2011, only 9% of children scored above the clinical cut-off (11% of females and 7% of males). It is possible that the lower prevalence of mental disturbance reported in the Scottish Health Survey may be due to the fact that mental health tends to decline as adolescence progresses: The Scottish Health Survey showed that girls aged 14 and 15 (the oldest adolescents included in the research) were more than twice as likely as those aged 13 to meet the criterion for presence of psychiatric disturbance. Since our sample included participants up to the age of 17, it is reasonable that we would obtain higher psychiatric disturbance rates in our study than those observed in the Scottish Health Survey. However, even taking this into consideration, the fact that we found that such a large proportion of young people are experiencing clinical psychiatric disturbance clearly calls for urgent attention.

4.5. Limitations and Future Directions

This study is not without its limitations. One potential drawback is that the data are cross-sectional, so it is not possible to establish the direction of the relationship between identification and mental wellbeing. Based on the results of previous longitudinal and experimental studies (e.g., Haslam and Reicher, 2006; Haslam et al., 2009; Cruwys et al., 2013), it is likely that identification determines mental wellbeing rather than vice versa. However, the longitudinal data collected in Wave 2 of this project will help to clarify the nature of this relationship.

A further limitation involves the use of questionnaires for collecting attitudinal data, which has the potential to elicit responses which the participants deem to be socially desirable (rather than entirely truthful). However, given the number of participants involved in the present study, other methods of data collection would be

impractical. Moreover, we believe that our policy of anonymity encouraged participants to respond truthfully.

4.6. Implications

Our findings suggest that, in the first instance, the aim of parents, teachers, and policymakers should be to encourage young people to join groups. However, it is important for these individuals to make the distinction between merely being a member of a group and actually identifying with it. It is this sense of belonging and commonality that appears to be crucial for mental health (Sani et al., 2012; Haslam et al., 2014). This suggests that once young people have joined groups, they should be encouraged to integrate the groups into their lives, to foster a sense of commonality with other group members, and to develop a common bond in order to promote strong relationships and a clear sense of group identity. The identification processes could further be encouraged by choosing groups that are compatible with existing group memberships and identities (e.g. Haslam et al., 2014).

Ideally, multiple group memberships should also be encouraged. It is not clear in the present study whether it is identification with multiple groups of any kind or identification with the three specific groups that we investigated that is more crucial for adolescent mental wellbeing. However, it could be argued that the family, school, and friend groups are likely to be the three core groups in an adolescent's life, so it would make sense to encourage identification with all three of these groups. This is particularly crucial during the physical, emotional, and social changes of adolescence, where possessing multiple secure and supportive groups is likely to be a highly valuable resource.

In conclusion, our findings offer a clear illustration of the benefits of group identification for mental health, and thus add to the growing body of literature which

highlights the potential for a ‘social cure’ for ill-health (Jetten et al., 2012). More specifically, however, our research shows that group identification is beneficial for a particularly vulnerable population at a life-stage when mental ill-health has the potential to affect the rest of an individual’s life.

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Contributors

Author 1 co-devised the questionnaire, collected the data, co-analyzed the data, and co-wrote the paper. Author 2 co-analyzed the data and co-wrote the paper. Author 3 co-devised the questionnaire and co-analyzed the data.

Conflict of Interest

The authors declare that there is no potential conflict of interest with respect to the authorship and/or publication of this article.

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Table 1. Means, standard deviations and reliabilities for variables, and intercorrelations

Variable	1	2	3	4	5	6	7	8
1. Family Identification (1-7) ($M = 6.37$; $SD = 1.00$; $\alpha = 0.92$)	—							
2. School Identification (1-7) ($M = 5.75$; $SD = 1.10$ $\alpha = 0.89$)	0.41***	—						
3. Friend Identification (1-7) ($M = 6.34$; $SD = 0.89$; $\alpha = 0.91$)	0.39***	0.49***	—					
4. GHQ-12 (0-12) ($M = 3.05$; $SD = 3.25$; $\alpha = 0.89$)	-0.38***	-0.37***	-0.33***	—				
5. Age (years) ($M = 15.07$; $SD = 0.97$)	-0.05	-0.02	-0.03	0.02	—			
6. Family Contact (Z-score) ($M = -0.002$; $SD = 1.74$; $r = 0.52$ ***)	0.10**	0.04	0.001	-0.06	-0.06*	—		
7. School Contact (Z-score) ($M = -0.01$; $SD = 1.46$; $r = 0.09$ **)	0.04	-0.05	0.07*	-0.06	0.01	0.27***	—	
8. Friend Contact (Z-score) ($M = 0.001$; $SD = 1.98$; $r = 0.94$ ***)	-0.07*	-0.09**	-0.07*	0.02	-0.03	0.01	0.10**	—

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

Table 2. Summary of hierarchical regression analysis for variables predicting GHQ-12

	<i>B</i>	SE	β
Step 1			
Constant	2.67	1.62	
Gender (0 = female, 1 = male)	-1.93	0.21	-0.29***
Age (years)	0.09	0.11	0.03
Family contact (Z-score)	-0.06	0.06	-0.04
School contact (Z-score)	-0.05	0.07	-0.02
Friend contact (Z-score)	0.07	0.50	0.04
<hr/> ($R^2 = 0.09$)			
Step 2			
Constant	13.60	1.67	
Gender (0 = female, 1 = male)	-1.64	0.19	-0.25***
Age (years)	0.04	0.10	0.01
Family contact (Z-score)	-0.02	0.05	-0.01
School contact (Z-score)	-0.06	0.07	-0.03
Friend contact (Z-score)	-0.003	0.05	-0.002
Family identification (1-7)	-0.63	0.11	-0.20***
School identification (1-7)	-0.74	0.10	-0.25***
Friend identification (1-7)	-0.34	0.13	-0.09**
<hr/> ($R^2 = 0.27$; $\Delta R^2 = 0.18$ ***)			

** = $p < 0.01$; *** = $p < 0.001$

Table 3. Frequencies and percentages for presence of psychiatric disturbance at each level of High Group Identifications (0-3), including chi-square value

No. of High Group Identifications	Presence of Psychiatric Disturbance	
	No	Yes
0 (<i>N</i> = 76)	22 28.90%	54 71.10%
1 (<i>N</i> = 145)	57 39.30%	88 60.70%
2 (<i>N</i> = 324)	208 64.20%	116 35.80%
3 (<i>N</i> = 501)	416 83.00%	85 17.00%
$\chi^2 (3, N = 1046) = 159.96;$ $p < 0.001$ Cramer's <i>V</i> = 0.39 $p < 0.001$		

^a65 participants had a missing value for Number of Group Identifications and/or for presence of Psychiatric Disturbance. These individuals are excluded from this table.

Table 4. Summary of logistic regression analysis for variables predicting psychiatric disturbance (no/yes)

Variable	<i>B</i>	SE	Wald Statistic	<i>p</i>	Odds Ratio	95% CI for Odds Ratio	
						Lower	Upper
No. of High Group Identifications (0-3)	-0.9	0.09	102.94***	<0.001	0.41	0.34	0.49
No. of High Contact Groups (0-3)	-0.02	0.09	0.04	0.83	0.98	0.82	1.17
Gender (female = 0, male = 1)	-1.19	0.16	53.40***	<0.001	0.30	0.22	0.42
Age (years)	0.01	0.82	0.01	0.91	1.01	0.86	1.19

*** = $p < 0.001$.